

Structural, Stratigraphic, and Geomorphologic Reconstruction of an Early Stage Pliocene Raft in Viosca Knoll–Mississippi Canyon, Gulf of Mexico, Using 3D Seismic Data

Matthew R. Worrell¹ and Wesley A. Brown¹

¹Department of Geology, Stephen F. Austin State University, Nacogdoches, Texas

ABSTRACT

The understanding of salt tectonics, and the complex structural ramifications therein, are one of the most important factors regarding seismic interpretation of stratigraphy, structure, and geomorphology in the Gulf of Mexico. Evaluating the processes affecting modern mobilization of salt can help provide analogues for older, similar occurrences, thereby shedding light on questions about potential timing and migration issues of hydrocarbons. Cenozoic progradation of delta front and shelf to slope transitional sediments is currently deforming allochthonous salt in the Viosca Knoll and Mississippi Canyon protraction areas of the Gulf of Mexico. This deformation appears to be analogous to Mesozoic rafting events found in the eastern Gulf of Mexico. Intensive study of the area should afford enough information to refine the effect differential loading had on mobilization of salt, said mobilization's effect on the overlying strata's structure and depositional setting, and the amount of future loading needed to cause further deformation of the salt body.